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ABSTRACT

A picture can be interpreted in different ways by various persons. There is often a difference between a picture's denotation (literal meaning), connotation (associative meaning), and private associations. Two studies were conducted in order to observe the private associations that pictures awaken in people. One study deals with associations made from slides; the other with interpreting pictures in advertisements. In the first study, 25 university students were shown slides, then asked to write the associations called to mind by the image content in each slide. Chains of association reflecting the subjects' trains of thought are discussed and examples provided. The conclusion was drawn that teachers who use slides in their verbal presentations must realize that pictures can generate a variety of associations in audiences. Thus, it may be concluded that pictures used in information and instructional material, always should have captions to guide the understanding of the content. In the second study, six advertisements were chosen at random from an airline magazine. Trademarks were hidden, and the advertisements were shown to 50 students, who were asked to write down what company they thought the advertisement represented; type of product; company or trademark they believed the advertisement was meant to promote; and whether they had seen the picture before. Results showed that only a few students had either seen some of the pictures before, or could associate the right picture with the right company. It was concluded that pictures seldom give rise to associations that are directly linked to the advertised product, service, company, or trademark, and the associations elicited can best be described as "disparate." Two tables summarize the data. (Contains nine references.) (MAS)

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Associations from Pictures

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Rune Pettersson

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In comparison to a written text, a visual contains an infinite amount of information (Pettersson, 1985). By selecting and utilizing different parts of the information in a picture on different occasions, we can experience completely new and different perceptions when we re-see a picture in new contexts. Like other languages, pictures consist of coded messages that are comprehensible in a given social context and in a given age. For example, we often find it difficult to interpret the messages in pictures from unfamiliar cultures and ages. "Modern art" puzzles its viewers who have not yet learned to decipher the new codes. The reader (viewer) always has greater freedom in interpreting a visual message than a verbal message.

Pictures convey multiple messages. Extraneous messages may compete with the messages the sender regards as significant and important. Thus, pictures always incorporate some ambiguity and numerous "correct" interpretations, although not always a picture's intended or anticipated interpretation. The way in which a picture is interpreted depends to a great extent on the reader's code in relation to the sender's code. Studies of intended vs. perceived image content give clear evidence that there are major differences between intended and perceived image content.

In recent studies, questionnaires completed by pupils and teachers show that there are many different purposes served by the pictures that are used in schools (Pettersson, 1990). Most of these pictures can be perceived as pedagogical or cognitive in purpose, as opposed to pictures that are used to entertain, or as decoration, or in advertising and marketing. In one study made at the secondary school level, eighty-two pupils questioned mentioned 391 purposes in all, while 40 teachers named 84 purposes. Many of the answers were similar, some were even synonymous or closely related to each other. By far the most common purposes of the pictures shown in school were named as: showing, explaining, making clear, illustrating, informing, summarizing, elucidating, and conveying information.

Thus, pictures can have many purposes. This makes as great a demand upon lecturers and teachers as it does upon listeners and readers. We should always be on the alert, ready to question what the author/photographer/artist/editor means with a picture. Why is the picture there? What is its function? What is the picture's denotation (i.e., primary meaning, basic meaning, main message)? What connotations (i.e., secondary or implied meanings) does the picture have? What personal associations does the picture awake in different persons?

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As far as ambiguous pictures are concerned, there is often a major difference between their *denotation*, i.e., their literal meaning, and their various *connotations*, i.e., their associative meanings, and their *private associations* (Figure 1).

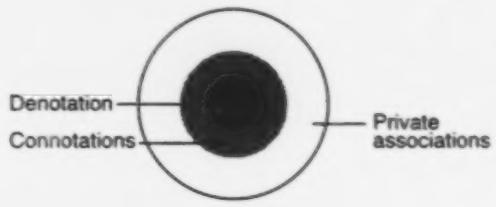

Figure 1. A picture can be interpreted in different ways by various persons. We can define fields of denotation (center), connotations (middle), and private associations (outer area).

In order to observe *the different private associations pictures awaken in people*, two studies were conducted, one of which deals with *making associations from slides* and the other with *interpreting pictures in advertisements*.

Associations from slides

During the spring term of 1991, 25 students at Stockholm University took part in the study's first field experiment. The students were told that they would be shown three slides (slides 1, 2, and 3 below), and that on viewing each slide, they should write on a separate paper *the associations* called to mind by the image content in each slide. Slide 1 was projected for 30 seconds while the students wrote their associations. After these 30 seconds, the notes were gathered up. This procedure was then repeated with the two remaining slides.

Later that year, during the autumn term, another 27 students were tested. In the second test, two pictures were replaced by others, and the pictures were only projected for 20 seconds (slides 3,4 and 5 below).

Studies of eye movements have shown that it only takes a few seconds to *recognize* a "common" image content. In other words, on both of these occasions the students were able to *view* the pictures and understand the image content, but they were given no chance to actually *analyse* and reflect on the content of each picture.

Slide 1

Test pattern from Swedish Television channel 1. The first text line reads "TV1", the second "SWEDEN".

Slide 2

Stockholm's City Hall, seen from a bridge between Riddarholmen and Södermalm on a summer's day. A few white boats can be seen contrasted against the waters of Riddarfjärden.

Slide 3

Close-up of a dead bird washed up on a sandy Japanese beach. The bird is as large as a gull, and parts of its skeleton are clearly visible. There is no trace of oil or any other potential menace; the picture does not explain how the bird died.

Slide 4

A DC-3 flying low over Riddarfjärden in Stockholm on a cloudy day in late summer. The airplane's lights are on, shining clearly against a dark cloud.

Slide 5

Musicians dressed in brightly coloured folk costumes are playing at Skansen, Stockholm's outdoor museum. It is a bright summer's day.

Table 1. Associations generated by viewing slides; the number of associations.

	Number of subjects for each slide					
Number of associations	*1*	*2*	*3a*	*3b*	*4*	*5*
1	7	2	3	7	16	16
2	5	4	5	10	7	7
3	7	6	9	6	3	4
4	3	5	4	4	1	0
5	1	5	3	0	0	0
6	0	2	1	0	0	0
7	1	1	0	0	0	0
8	1	0	0	0	0	0
m	2.8	3.7	3.1	2.3	1.6	1.6
n	25	25	25	27	27	27

For the slides viewed for 30 seconds (1, 2, 3a) the average number of associations was 3.2, and for the slides viewed for 20 seconds (3b, 4, 5) the average number of associations was 1.8.

The slides stimulated great variation in the number of associations different subjects experienced. Some subjects got only one association from a slide, such as "children's program" or "I turned on the TV too early" (slide 1), while other subjects produced long chains of associations, such as "TV - films - the news - sofa - tea and sandwiches - boring music - expectation" and "evening - film - candy - potato chips - fear - joy - loneliness - peace" (also slide 1).

In all, 385 associations were generated, 239 for the 30-second showings, 146 for the 20-second showings. In the first group, the average was 3.2 associations per person per picture. In the second group, the average was 1.8 associations per person per picture. The difference is most likely due to the viewing period being 10 seconds shorter for the second group, but as we saw above, the pictures were not the same in the two groups. For the picture viewed by both groups (slide 3), the average number of associations in the first group was 3.1, and in the second, 2.3 (significance 0.01). In some cases, several people made similar associations. Four subjects, for example, thought only of "JAS" when they saw the picture of the plane (picture 4), and three subjects thought only of "Midsummer" when they saw the musicians (picture 5). (JAS is a fighter-plane developed in Sweden.)

From a pictorial perspective, some of the words the students wrote down were actually denotations and connotations rather than associations, in as much as they directly reflect the pictures' content. It is interesting to see how words of this type, with their natural linkage to a picture's denotation or connotation, constitute the starting point for *chains of associations* in several different subjects, and thus reflect the trains of thought in the subjects being tested. On viewing slide 2, for example, eleven of the 25 students chose the word *summer*, and proceeded to generate both short and long chains of associations, all of which terminated in different ways.

Summer – taking a walk home
Summer – getting lost in a tower
Summer – long walks – school outings – dizziness
Summer – sailing – bicycling through Stockholm – morning
Summer – sun – the leaning tower of Pisa
Summer – warmth – Stockholm – vacation

Summer – lovely – grandmother – boats – the archipelago
Summer – sun – sea – Stockholm – tourism
Summer – City Hall – Stockholm – steamboat – soot on my clothes
Summer – warmth – leisure time – beautiful – Swedish
Summer – warmth – joy – Drottningholm Castle – boat – taking a walk – trains

The word summer can also be found in chains of associations that begin with other words than summer.

Sun – *summer* – Stockholm
Stockholm – *summer* – drinking coffee by the water – warm
Stockholm – *summer* – warm – tourists – the Old Town
Stockholm – City Hall – *summer* – the Swedish flag

In other words, the students have thought of the same things to some extent, but not necessarily in the same order.

Another example is the word *death*, which also led to various chains of associations.

Death – decay
Death – a cycle
Death – environmental pollution
Death – oil catastrophe
Death – a beach
Death – a beach
Death – look away
Death – a desert
Death – afraid of birds – sad
Death – the passage of life – the work of humans – disturbing
Death – the cycle of life – rot
Death – disgusting – war
Death – disgusting – oil
Death – yuck! – disgusting – but a lovely beach – oil
Death – disgusting – uncared-for – sandy beach – Gålö (Gålö is an island in the Stockholm archipelago)

Dead bird – environmental pollution – oil spills
Dead bird – sea – sand – oil – feathers
Dead bird on a beach – oil? – no, no oil on the bird – natural death

Like the word summer also the word *death* turns up later on in some chains of associations.

cadaver – *death* – rot
feathers – nature – *death* – sand
bird – feathers – nature – *death*

As could be expected, to a great degree the summer pictures awakened positive associations. Examples of this are words such as: "drinking coffee by the water", "leisure time", "lovely", "warm breezes", "my wedding", "taking a walk", "fun time", "sun", "Stockholm's festival day", and "beautiful" (slide 2); as well as "folk music", "a cabin in the country", "Midsummer", "sun", "a fiddler's hoedown", "summer in Sweden", "warmth" (slide 5). But in these contexts even negative associations came up: "one of our worst summers", "a smarmy advertisement for Stockholm" (slide 2); and "hay fever" (slide 5).

The picture of the dead bird (slide 3) produced associations that can be perceived as negative. Some of these are: "death", "putrefaction" "destruction", "cadaver", "cold sand", "war", "oil spills", "environmental pollution", "environmental catastrophe", "disturbing", "rot", "the end", "sorrow", "desolation", and "adesert". Nevertheless, this picture did call to mind a few positive associations: "lovely beach", "an archipelago", "beauty", and "warm sand".

The picture of the airplane (picture 3) was widely felt to arouse negative associations: "the second world war", "threatening clouds", "the JAS project", "crash", "war", "accident" and "ashes". However, the picture did elicit a few positive associations: "a charter trip", "trip to England" and "vacation".

Some associations can be looked on as neutral. Examples of this are: "afternoon

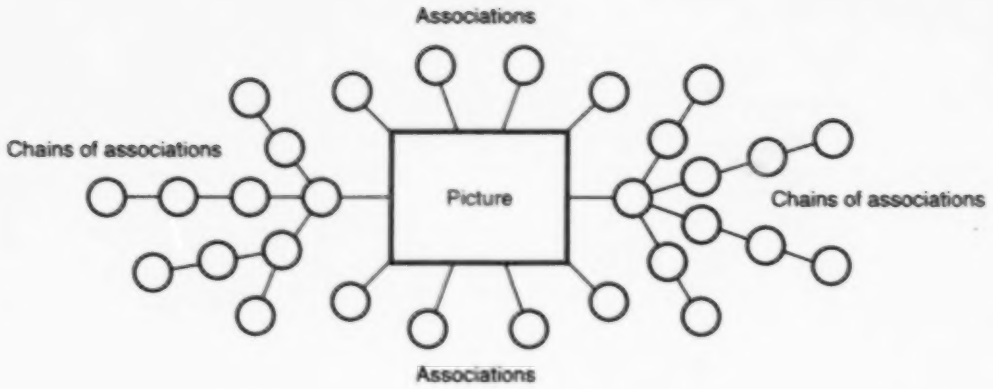

Figure 2. Any picture can arouse a great number of different private associations and chains of associations in different individuals.

educational radio", "I turned on the TV too early" (picture 1); "tourism", "boat companies" (picture 3); "Arlanda Airport" (slide 4); and "Dalecarlia" (Dalecarlia is a province in Sweden), "a cabin in the country", and "Skansen" (slide 5) (Skansen is Stockholm's rustic outdoor museum).

Clearly, it can be concluded that lecturers and teachers who use slides in their verbal presentations must realize that *pictures can generate a great variety of associations in audiences*. Therefore it is necessary that the presenters talk about pictures in an interesting way, clearly indicating what each picture means to say, so that the message communicated is in fact the intended one.

Russel (1991) has made a somewhat similar study in Australia. She was interested in finding out how individuals make sense of their world through photographs. Children (11 – 12 years old) were given black and white, and color photographs and were asked to write words and phrases which came to mind as they viewed the images. A total of 163 children responded to a picture of five Indian children photographed in a desert environment. The picture elicited more than 400 different words/phrases (associations). On average, a total of 17 words/phrases were given by each child. Russel found that boys used words that are denotative or refer to factual elements in the photograph. Girls used more emotive words, which reflect a viewpoint of the children in the photograph.

Russel concluded that photographs can provide a unique view of life, but the meaning in the mind of the viewer is influenced by the cultural environment and background experiences of the viewer. In making sense of the world through photographs each viewer internalizes the message to personal space, time and life experiences.

Russel (1993) described five categories for viewers' contributions to photographs. The categories are observation, interpretation, personal memories, participation, and medium intrusion. *Observation*, the photograph is seen as a series of observable elements. *Interpretation*, the photograph is seen as a stimulus for interpretation. The viewer tries to create meaning from the visible elements. *Personal memories*, the photograph is seen as a stimulus to recall

personal experiences. *Participation*, the photograph is seen as a stimulus for imaginative participation. The viewer is participating in the scene in the image. *Medium intrusion*, the photograph is seen as a specific communication medium related to the photograper and the camera. These categories for viewers contributions to photographs can also be found in the Swedish material.

Interpreting pictures in advertisements

Many companies, public authorities, and other organizations put a great deal of effort and money into the design and distribution of advertisements. Sometimes the text and pictures shown are redundant with respect to each other, giving the same information, or at least closely congruent information, to the observer. However, in some advertisements, we see pictures that do not represent the product or service itself, but something altogether different. Thus we ask ourselves what function these pictures have, and which associations and thoughts they awake in the observer. Are the associations that they bring to mind linked to the advertised product or service? To the company or trade mark? To the "branch" or the entire business as such? Or do they inspire completely different associations?

By way of experiment, I chose at random six advertisements from SCANORAMA, an airline magazine published by SAS, that is meant to be read by passengers on flights and in transit halls. The advertisers are all well-known companies, whose products and services are offered internationally. The advertisements chosen, which were all of full-page format, can be briefly described as follows:

Ad 1

Picture: A black sports car - Toyota - without a driver, seen at an angle from above. The car is close to the road's white line.
Text: Describes the advantages of the product.
Layout: The picture almost covers the upper half of the page. There is a line of text above the picture, and a rather long text below it.
Advertiser: Mobil Oil.
Product: Mobil 1 Fully Synthetic Lubricant.

Ad 2

Picture: A hand gloved in white holding a silver tray with a coffee pot, two cups of coffee, two silver spoons, and two flowers. Black background.
Text: Names various fine restaurants that accept Diners Club Cards.
Layout: The picture almost covers the upper half of the page. The text, white against a black background, takes up the other half of the page. In the lower right-hand corner, inserted into the body of the text, there is a picture of a Diners Club Card.
Advertiser: Diners Club International
Product: Diners Club Card.

Ad 3

Picture: Part of the foredeck, a bit of the mast and the sail of a boat in rough weather.
Text: Tells that the advertiser sponsors the world's toughest sailboat competition, "The Whitbread Round-the-World Race".
Layout: The picture covers about two-thirds of the page. In the lower right corner, inserted into the body of the text, is a picture of an open bottle of Beefeater Dry Gin and a full glass.
Advertiser: Beefeater
Product: Dry gin.

Ad 4

Picture: A man in a pilot's helmet and goggles, with wings strapped to his arms, a suitcase in each hand and a bag that he carries by holding its strap in his mouth.
Text: The airline company SAS has its own hotels in various places, and offers special service for business travelers.
Layout: The picture covers about two-thirds of the page. There is a line of text above the picture. The main text covers the lower third of the page.
Advertiser: SAS International Hotels
Product: Lodging at SAS hotels.

Ad 5

Picture: A Japanese air-hostess, kimono-clad, holding a bowl in her hands.
Text: Tells about the airline's fine service.
Layout: There is text both above and below the picture, which covers a bit more than half the page. In the lower right-hand corner, there is a small picture of a plane partially inserted into the large picture.
Advertiser: All-Nippon Airways, ANA
Product: Air travel.

Ad 6

Picture: The face, throat and shoulders of a young woman.
Text: "Giorgio Armani Parfums", the name of the advertiser.
Layout: The picture covers the whole page. In the lower right-hand corner, a picture of a perfume bottle is inserted. The short text is inside the smaller picture.
Advertiser: Giorgio Armani Parfums. (The name "Armani" is on the perfume bottle.)
Product: Perfume.

The six main pictures were cut out, pasted on white paper and numbered randomly. Two of the pictures (5 and 6) were clipped so that no trade marks could be seen. In a field study in the spring of 1990, 50 students at Stockholm University took part. The participants were told that the pictures were clipped from advertisements for products made by well-known international companies. They were also told that the advertisements had been published in an airline's magazine, but they were not told the names of either the airline or the magazine. The students got to study each picture for *as long as they needed* – usually a half-minute at the most – to decide what company they thought it represented. Then they were asked to write down the type of product and the company or trade mark that they believed the advertisement was meant to promote. The students were also asked whether they had seen the pictures before.

The results showed that only a few of the students tested had ever seen some pictures before (5 occasions out of 300), and since they were so very few, the material includes them as well. Only a few of the students associated the "right" picture with the "right" product and the "right" company. Four of the six pictures caused all the students to associate them with the "wrong" products. In one case (ad 6), two of the students (4%) associated a picture with the right product, and in another case (ad 5), thirteen students (26%) named the right product. However, only incorrect companies were associated with five of the six pictures. Six students (12%) associated one picture (ad 4) with the right company.

As shown in table 2, one picture (ad 5) produced 17 different suggestions as to what the product might be. As for companies, another picture (ad 2) elicited 15 different suggestions. Thus it is very obvious that the pictures seldom gave rise to associations that were directly linked to the advertised product or service, or to the

Table 2. Associations between advertisement pictures and products or companies.

Advertisment	Product			Company		
	Right	Wrong	Answers	Right	Wrong	Answers
1	0	100	5	0	100	5
2	0	100	6	0	100	15
3	0	100	16	0	100	14
4	0	100	8	12	88	9
5	26	74	17	0	100	10
6	4	96	11	0	100	13

In this table, "right" indicates the percentage of correct answers with regard to the product or the company. "Wrong" indicates the percentage of answers in which the product or company named was incorrect. "Answers" indicates the actual number of different answers regarding products and companies given (not persons who answered) including the alternative "Don't know". The number of subjects were 50.

advertising company or trade mark. On the other hand, they did produce associations linked to the "branch", or to similar products or operations. Generally speaking, however, the pictures awakened quite disparate associations.

In reaction to the advertisement for "Beefeater Dry Gin" (Ad 3), the product was guessed to be the following 16 products (number of persons in parenteses): Beer (10), spirits (3), sailboats (3), after-shave lotion (3), a soft drink (2), a boat (2), a trip (2), clothing (2), boat accessories (1), whiskey (1), "use a life-preserver" (1), a bank (1), tarpaulins (1), chewing-gum (1), and oil (1). Furthermore, quite a few students (16) had no idea what the product could be. As for guessing the company or trade mark, the test group came up with several names, but not the right one.

The advertisement for "Georgio Armani Parfums" (ad 6), produced the following eleven suggestions as to what the product could be (number of persons in parentheses): Cosmetics (20), make-up (11), skin lotion (6), beauty products (5), tea (3), clothing (3), perfume (2), hair-care products (2), air journey (1), food (1), and a few subjects (3) had no answer at all. As for guessing the company name or trade mark, here again names were suggested, but not the right one.

It can be concluded then, as in earlier studies (Pettersson, 1985, 1986, 1988, and 1989), that pictures can always be interpreted in a number of different ways. Yet it cannot be said that the pictures in these advertisements were inappropriate to the products they were meant to promote. In the contexts in which they appear, i.e., magazines, billboards, etc., the pictures are shown together with the texts, and *it is the texts that to some degree determine or revise our understanding of the pictures.* It is not very likely that the average observer questions whether a certain picture would suit another product better than the one it advertises. Obviously, the picture's function is not to sell the product in a direct manner, but rather to stimulate the observer's interest in the advertisement as such, thereby enticing him to read the verbal message and thus absorbing information about the product as well as the advertiser.

Conclusions

The first study showed that pictures can generate a great variety of associations in audiences. Thus, it may be concluded that pictures used in information and instruc-

tional materials always should have captions to guide the understanding of the content.

The second study showed that pictures can always be interpreted in a number of different ways, and that it is the texts that to some degree determine or revise our understanding of the pictures.

We know from earlier studies (Pettersson, 1985) that, as far as words and pictures are concerned, there is often considerable disparity between the sender's "intended message" and the receiver's "perceived message". Indeed, it is sometimes doubtful whether the receiver has understood anything at all of what the sender wants to convey. Listeners and readers create their own associations and chains of associations (Figure 2). However, one way of diminishing the gap between the sender's intention with a picture and the receiver's understanding of it, is to present the picture with interesting verbal comments and/or explanatory texts that can actively "confirm" the intended interpretations (Pettersson, 1993; Melin and Pettersson, 1991).

All the same, it is not sufficient merely to choose good pictures and see to it that they have adequate explanations. To provide readers and listeners with real help in interpreting pictures in AV material, student handbooks and other teaching aids, lecturers and teachers should be given proper guidance, for example, special instruction in pictorial presentation, the aim of which should be to enable them:

- To explain the purpose of each individual picture.
- To supplement the text by telling what the picture shows.
- To give various examples of how each picture can be used in the classroom, i.e., what is important enough to bear discussion? What tasks can be assigned in connection with a given picture?
- To provide, where necessary, supplementary facts about each picture, for example, how the picture was produced.
- To name and discuss the photographer, or artist or other producer of the pictures shown.

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